

Heat Treatment

USSR

UDC 669.293.5'296'786.018.44:621.785.783

ZVEZDIN, YU. I., POVYSHEV, I. A., PUGACHEV, G. S., YAKOVLEV, V. A.

"Effect of Heat Treatment on the Mechanical Properties of Nb-Zr-N and Nb-Zr-C Alloys"

Metallovedeniye -- V sb. (Physical Metallurgy -- collection of works), No 14, Leningrad, Sudostroyeniye Press, 1970, pp 233-237 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41784)

Translation: A study was made of the problems of heat treatment of dispersion-hardening alloys of the Nb-Zr-N and Nb-Zr-C systems. It was demonstrated that hardening of the alloys is achieved by separation of the interstitial phases in the aging process at 1,000-1,100°. The alloys have maximum strength after special heat treatment consisting in annealing at 1,800° with subsequent aging in the 1,000-1,100° range. There are 4 illustrations, 2 tables, and a 2-entry bibliography.

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1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CHANGE OF CAPILLARIES IN BURN DISEASE -U-
AUTHOR--YAKOVLEV, V.A.
COUNTRY OF INFO--USSR
SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 24-26
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CAPILLARY, BURN, SKIN, RADIOISOTOPE, VASCULAR INJURY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY KEEL/FRAME--3006/0395 STEP NO--UR/C177/70/000/003/0024/0026
CIRC ACCESSION NO--AP0134100
UNCLASSIFIED

2/2 C20

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISTURBANCE OF THE PERMEABILITY AND RESISTANCE OF THE CAPILLARIES OF BURNED SECTIONS OF THE SKIN IS GENERAL ACKNOWLEDGED. THERE ARE DIFFERENCES OF OPINION ON THE QUESTION OF DISTURBANCE OF THEIR FUNCTIONS OUTSIDE THOSE SECTIONS. THE STATE OF THE CAPILLARIES OF UNDAMAGED SECTIONS OF SKIN IN PATIENTS WITH THERMAL BURNS HAS BEEN STUDIED BY VARIOUS AUTHORS BY MEANS OF THE JAR TEST, THE LANDIS TEST, AND ALSO BY MEANS OF RADIOACTIVE ISOTOPES AND OTHER INDIRECT METHODS (I. D. ZHITNYUK, K. F. DOGAYEVA AND I. S. ITKIN, I. T. POPOV, L. M. KLYACHKIN, AND OTHERS). POLITOWSKI AND JAROSZ MADE A VISUAL STUDY BY THE CAPILLAROSCOPIC METHOD IN WHICH NO CHANGES AS REGARDS THE VASCULAR WALL WERE DETECTED. IT MUST BE EMPHASIZED, HOWEVER, THAT THOSE AUTHORS OBSERVED MAINLY PATIENTS WITH SUPERFICIAL BURNS. THE PURPOSE OF OUR WORK WAS TO INVESTIGATE BY CAPILLAROSCOPY THE STATE OF THE CAPILLARIES AND THEIR RESISTANCE ON UNDAMAGED SECTIONS OF THE SKIN OF PATIENTS WITH BURNS OF DIFFERENT DEGREES. ACCORDING TO THE DATA OF B. LEVITAN, B. SOKOLOV AND COAUTHORS AND OTHERS, RUTIN HAS A FAVORABLE INFLUENCE ON DISTURBED VASCULAR PERMEABILITY IN A NUMBER OF DISEASES, AND THEREFORE WE DECIDED TO STUDY THE EFFECT OF THAT PREPARATION ON BURNED PERSONS.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--DISTRIBUTION AND PROPERTIES OF AZOTOBACTER VINELANDU HYDROGENASE
-U-
AUTHOR--(02)-YAKOVLEV, V.A., MITSOVA, I.Z.
COUNTRY OF INFO--USSR
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2,
PP 283-290
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ENZYME ACTIVITY, HYDROGEN, REDUCTION, NITROGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1384 STEP NO--UR/0216/70/000/002/0283/0290
CIRC ACCESSION NO--AP0109454
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109454

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AZOTOBACTER VINELANDU HYDROGENASE WAS STUDIED. ENZYMATIC HYDROGEN REDUCTION OF TETRAZOL DERIVATES DIFFERING IN THEIR CHEMICAL COMPOSITION AND DISPLAYING DIFFERENT OXIDATION, REDUCTION POTENTIALS WAS EXAMINED. DISTRIBUTION OF THE ENZYME AMONG FRACTIONS OF SUBCELLULAR PARTICLES, SOME OF ITS KINETIC PROPERTIES AS WELL AS THE INFLUENCE OF MOLECULAR NITROGEN ON THE REACTION OF ENZYMATIC REDUCTION OF ARTIFICIAL ACCEPTORS BY MOLECULAR HYDROGEN WERE ELUCIDATED. IT WAS FOUND THAT MAXIMAL HYDROGENASE ACTIVITY IS CONNECTED WITH THE FRACTION OF CELL FREE. AZOTOBACTER VINELANDU PREPARATION OBTAINED AFTER CENTRIFUGATION AT 144000 G FOR ONE HOUR. THE RATE OF ENZYMATIC REDUCTION WITH MOLECULAR HYDROGEN OF TETRAZOL SALTS POSSESSING A HIGHER OXIDATION, REDUCTION POTENTIAL AND BECOMING INCORPORATED INTO THE RESPIRATORY CHAIN AT ITS BEGINNING IS BY ONE ORDER HIGHER THAN THE RATE OF REDUCTION OF TETRAZOL SALTS HAVING A MORE NEGATIVE POTENTIAL AND BECOMING INCORPORATED AT THE END OF THE RESPIRATORY CHAIN. THE VALUES OF MICHAELIS CONSTANTS OF THE PARTICLES FRACTION HYDROGENASE AND THE INTACT CELLS HYDROGENASE WERE CALCULATED WITH REFERENCE TO HYDROGEN AND TETRAZOL. IT WAS SHOWN THAT THE TETRAZOL SALTS REDUCTION RATE WITH MOLECULAR HYDROGEN IN THE PRESENCE OF BOTH THE INTACT CELLS AND THE CELL FREE FRACTIONS LACKING ENDOGENOUS TETRAZOLREDUCTIVE ACTIVITY IS HINDERED BY MOLECULAR NITROGEN. FACILITY: INSTITUTE OF CHEMICAL PHYSICS, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

USSR

UDC: 621.791.793.025.3

YAKOVLEV, V. F., All-Union Scientific Research, Planning, and Technological Institute of Construction and Road-Building Machinery

"Molten-Slag, Arcless, Electric Welding of Relatively Thin Rolled Stock Using Three-Phase Current"

Moscow, Svarochnoye proizvodstvo, No 5, 1971, pp 43-44

Abstract: The object of the study is to improve the existing molten-slag, arcless, electric welding method by raising the linear energy of the process which is necessary for raising the productivity of welding structural grades of steel and for ensuring the possibility of welding high-heat conducting metals. The improved method uses a three-phase power supply scheme. The power source is connected according to a "star" scheme without a zero wire, with two phases coupled to two insulated welding rods which are fed along slides, while the third phase is hooked up to the object being welded. Three phase power is used only in welding thick metals (180-500mm) using the A-535 unit and a three rod feed. It is also used in welding with three combined, laminated electrodes or with consumable tips connected individually to each phase. Under these conditions, the object being welded is connected to the zero lead. The use of this method ensures the passage of welding current

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USSR

YAKOVLEV, V. G., Svarochnoye proizvodstvo, No 5, 1971, pp 43-44

both between the welding rods and the object being welded as well as between the welding rods through the slag pool. Original article: one table, one figure, and two bibliographic entries.

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USSR

UDC 621.791.756:621.747.58

~~YAKOVLEV, V. F., KOVALKIN, P. I., YEVDOKIMOV, N. I., KOZULIN, M. G., and
GUSECHUK-SLYUSARENKO, I. I.~~

"Electroslag Welding of Steel Casting Defects"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 70, p 72

Abstract: A description is given of a technique of electroslag welding and building-up of steel casting defects. Using a water-cooled copper nonconsumable electrode, a slag bath is drawn which is then heated for a period of 15-60 min. During this time, the edges to be welded are heated to 800-1200°C, and under the effect of the heated slag the surface of the aperture is chemically cleaned. For welding the defect, the nonconsumable electrode is replaced by a spatial one which is consumable along the shape of the profile of the welded aperture. The direction of the fed welding wires plays an important role in the initial stage of fusion of the deposited metal.

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USSR

UDC 547.26'118

MIZRAKH, L. I., BABUSHKINA, T. A., YAKOVLEV, V. G., KOZLOVA, L. N., YUKHNO, Ye. M., STAROSTINA, L. N., and YANOCHKINA, G. A.

"Phosphorus-Containing Derivatives of Isothiuronium. III. Alkylation of Thiourea with Diethyl Chlorophosphate and the Diethyl Ester of 2-Bromoethylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2364-2367

Abstract: It was established that the metaphosphate of S-ethylisothiuronium formed upon the reaction of diethyl chlorophosphate with thiourea. A study of the reaction of O, O-diethyl 2-bromethylphosphonate with thiourea showed that in this reaction, as distinguished from that with alpha-halophosphonates (MizraKh et al, Zh. Obshch. Khim., Vol 41, 2654, 1971), which proceeded in the opposite order, alkylation of thiourea with the haloalkyl group took place initially, while participation of the ester group of the alkylation occurred only under more severe conditions. On further heating of the product $(EtO)_2P(O)CH_2CH_2 \cdot SC(NH_2)_2 Br^-$ that formed initially, EtBr evolved and the product $O_2\bar{P}(OEt) \cdot CH_2CH_2SC(NH_2)_2$ was obtained.

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Radiobiology

USSR

UDC 577.391:546.185'.13:546.171.2

TIKHOMIROVA, M. V., YAKOVLEV, V. G., and KLIMOVA, R. A., Institute of Biophysics, Ministry of Health USSR, Moscow

"The Radiation-Protective Activity of Diammonium Amidothiophosphate"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 533-536

Abstract: In experiments on mice and rats, diammonium amidothiophosphate (I) exerted a pronounced prophylactic effect when administered 10-20 min before irradiation with gamma-rays at a high dosage. The radiation doses applied were 800-1000 r for mice and 850 r for rats at a dosage of 483-558 r/min. The effective dose of I was 10 mg/kg for mice and 20-30 mg/kg for rats. The LD₅₀ of I for mice on intraperitoneal administration was 13 mg/kg. Study of spleen preparations showed that I was effective in expediting the restoration of hemopoiesis when administered before irradiation to mice. In experiments on dogs that were irradiated with a dose of 420 r, I on intravenous administration had a protective effect in a dose of 5 mg/kg, but was ineffective in doses of 3 and 4 mg/kg. However, I in a dose of 5 mg/kg was highly toxic to dogs; two of six non-irradiated control dogs treated with I in this dose died.

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1/2 028
UNCLASSIFIED
TITLE--INFLUENCE OF THE DOSE RATE OF GAMMA IRRADIATION ON THE
RADIOPROTECTIVE EFFECTIVENESS OF BETA, MERCAPTOETHYLAMINE HYDROGEN
AUTHOR--(02)--TIKHOMIROVA, M.V., YAKOVLEV, V.G.
COUNTRY OF INFO--USSR
SOURCE--RADIOBIOLOGIYA 1970, 10(11), 132-5
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GAMMA RADIATION, RADIATION BIOLOGIC EFFECT, ANTIRADIATION
DRUG, DOSE RATE, COBALT ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1852
CIRC ACCESSION NO--AP0127262
STEP NO--UR/0205/70/010/001/0132/0135
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127262

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ADULT MICE AND RATS WERE GAMMA
IRRADIATED (PRIME60 CO) AT 160-720 R-MIN FOR A SHORT TIME OR AT
0.28-3.67 R-MIN FOR A LONG (5-96 HR) TIME. WITH PROLONGED IRRADN. AT
LOW DOSES, IRRADN. WAS INTERRUPTED 1-2 TIMES DAILY FOR 20-30 MIN. TO
PART OF THE ANIMALS WAS INTRODUCED PER OS, I.V., OR I.P., 10PERCENT AQ.
BETA-MERCAPTOETHYLAMINE H TARTRATE (I), 30-40 MIN BEFORE THE IRRADN.
WITH SHORT DURATION OF GAMMA IRRADN. AND HIGH DOSES OF I, SURVIVAL RATE
WAS VERY HIGH. HOWEVER, NO RADIOPROTECTIVE EFFECTIVENESS OF I WAS OBSD.
DURING PROLONGED IRRADN. FACILITY: INST. BIOFIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

KOPNOV, V. I., YAKOVLEV, V. I.

UDC 539.374

"Evaluation of the Susceptibility of Materials to Damage Under a Load With the Aid of Ultrasonic Waves"

V sb. Issled. i kontrol' mekhanich. svoystv materialov nerazrushayushch. metodami (Study and Control of the Mechanical Properties of Materials by Nondestructive Methods -- Collection of Works), Vologograd, 1972, pp 144-147 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V504)

Translation: It is proposed that one can evaluate the buildup of susceptibility to damage in the loading process with the aid of ultrasonic waves by determining their absorption coefficient at different frequencies, using the UDM or DUK-6 instruments. The intensities of ultrasonic waves were determined before (f_0) and after (f) their passage through the material. A nomogram was constructed for the calculations in which the values of the absorption coefficients of the ultrasonic waves were represented as a function of the ratio f/f_0 for different thicknesses of the material being studied. Samples of AMG-6 aluminum alloy were studied that were deformed by stretching in the temperature range 20-500°. The change in the damping coefficient α as a function of the degree of deformation and the temperature was studied. It was shown that this

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KOENOV, V. I., YAKOVLEV, V. I., Issled i kontrol' mekhanich. svoystv materialov nerazrushayushch. metodami, 1972, pp 144-147

relationship is considerably nonlinear. There is a particularly strong increase in α in the temperature range 280-500°, which is associated with the formation of defects in the form of pores along the grain boundaries. Yu. V. Suvorova.

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USSR

UDC 669.715:669.046.54/55

YAKOVLEV, V. I., BALAKHONTSEV, G. A., BONDAREV, B. I., SHVETSOV, I. V., and
CHEREPOK, G. V.

"Effect of the Refining and Casting Technology on the Quality of Ingots and
Semifinished Goods"

Moscow, Tsvetnyye Metally, No 1, Jan 74, pp 64-67

Abstract: A comparative study of the properties of metals produced by different refining methods was carried out by processing statistical data on the results of the macrocontrol of ingot templates. It is shown that traditional refining methods provides nearly the same purity level in H content and other inclusions. The contradiction of this finding with the results of other researchers is explained. The effect of the casting technology on the purity of the metal was investigated on ingots of D1 alloy, 540 mm in diam. The results show a linear dependence of porosity on the H content. The volume of porosity in the ingots determines their disposition to stratification under deformation. To retain the fine-crystalline structure of the ingot and to eliminate stratification in stamping, the use of evacuation in the mixer has to match the modification of the melt. Five figures, one table, five bibliographic references.
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USSR

UDC: 533.652/.661.013

BOROVIK, V. N., VERESHCHAGIN, I. F., YAKOVLEV, V. I.

"Game Situations on a Sphere"

Uch. zap. Perm. un-t (Scientific Notes of Perm' University), 1971, No 239, pp 49-61 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B338)

Translation: The authors consider game situations of pursuit on a sphere of constant radius when a pursuing vehicle strives to approach the pursued vehicle in the minimum time after detection. The process of the game is limited by the fuel supply, atmosphere is disregarded, both vehicles operate in the limit mode. Optimum trajectories and maneuvers are found for approach of the vehicles in a given time, and a solution is found for the problem where the pay-off is time of motion of the vehicles. Solution of the principal equation of differential games shows that the thrust vectors in the case of optimum control should be parallel to each other (in the same direction in the case of an opposing target, and in opposite directions in the case of a cooperating target), the direction of these vectors depending on the relative range of the vehicles at the end of the game. The optimum trajectories of both vehicles are arcs of a great circle. G. S. Aronin.

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Acc. Nr. **AP0049306** - Abstracting Service:
- CHEMICAL ABST. 5-70

Ref. Code

4R 0226

103083v Activation of tungsten sintering by platinum group metals. Samsonov, G. V.; Yakovlev, V. I. (Inst. Probl. Materialoved., Kiev, USSR). *Porosh. Met.* 1970, 10(1), 37-44 (Russ). The effect of the Pt group metals (Ru, Rh, Pd, Os) on the sintering of W at 1000-2000° was investigated. The activating effect of the additive is increased as follows: Os > Ru > Rh > Pd. An electronic mechanism of activated sintering is considered on the basis of a model of configuration localization of valence electrons. The activating action of the additives results in the localization of nonlocalized electrons of W atoms near the cores of the additive atoms, with a general decrease in the stored energy of the system as a whole. The electronic transitions from the W atoms to the addn. atoms cause the high soly. of W in the Pt-group metals and their preferential (up to being unipolar) diffusion into W.
S. A. Mersol -

4R

REEL/FRAME
19801123

18

USSR

UDC 621.777.07.001.5

GUN, G. Ya., POLUKHIN, P. I., YAKOVLEV, V. I., YUROV, Yu. V., KORITSKIY, G. M., PRUDKOVSKIY, B. A., and KUCHERYAYEV, B. V.

"Experimental Investigation of Speed Distribution During Pressing in Multi-channel Matrices"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 177-184

Translation: Results are given of experimental studies to determine the speeds of metal flow into a matrix with several channels, which form an established profile divided by crosspieces. Six figures and three tables.

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USSR

UDC 669.716:621.777.02

DOBATKIN, V. I., GRISHKOVETS, Ya. G., and YAKOVLEV, V. I.

"Technological Properties of Metal in Pressing As a Function of the System of the Homogenization of Ingots"

Metallovedeniye Splavov legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 137-144, resume

Translation: Results are presented on an investigation of the properties of ingots of alloys D16 and Al+1.1 Mn at a temperature of 400°C and on the technological properties of the metal in pressing as a function of the homogenization system. A conclusion is made on the decreased plasticity characteristics of ingots and the worsening of technological parameters in pressing with increasing quantity of finely dispersed particles in the structure. The homogenization system must be selected with regard to obtaining the required structure of pressed products and, at the same time, the achievement of maximum plasticity of the metal by deformation temperature. The authors consider the most promising variant to be the combination of homogenization with heating with pressure working. Five figures, one table, seven bibliographic references.

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Aluminum and Its Alloys

USSR

UDC 669.71.017:548.53

YAKOVLEV, V. I., and GALATSKIY, B. D.

~~Some Characteristics of the Production Technology of Small-Grained Recrystallized Intermediate Products of Aluminum Alloys"~~

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 155-160, resume

Translation: An analysis of serial tests of pressed products established that there is a non-correspondence of mechanical properties in the case of a coarse-recrystallized structure. The kinetics of the change in structure and properties of pressed products, depending on the chemical composition of the alloy and technological factors, is investigated. A production technology is recommended for intermediate products with a small-grained recrystallized structure and volumetrically uniform mechanical properties with a complete absence of a large-crystalline rim. Four figures.

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USSR

UDC 621.777.07

GUN, G. Ya., POLUKHIN, P. I., YAKOVLEV, V. I., GOLOVINOV, M. F., PRUDKAVSKIY, B. A., KORSETSKIY, G. M., RYZHOV, A. F., and BRUNILIN, A. I.

"Optimal Die Designing for Pressing Aluminum Alloys"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 139-199

Translation: Questions of optimal die designing are considered using a computer. On the basis of statistical processing of a number of existing dies and theoretical and experimental research, a method is proposed for calculating the working belts and location of the center of gravity of a section on the die. Five figures and three tables.

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USSR

Powder Metallurgy

UDC 629.24:537.311:536.2

BEL'SKAYA, E. A., PELETSKIY, V. E., YAKOVLEV, V. K.

"Experimental Study of the Transfer Properties of Porous Nickel"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 44-50.

Abstract: The authors studied the transfer properties of porous nickel produced by pressing from nickel powder of at least 99.7% purity. The specimens were made from powders of four series differing in particle size (2.5 to less than 0.5 μ in diameter). The porosity was primarily open, but the percentage of closed pores in the compact materials was significant. Porosities varied between 20 and 65%. Heat conductivity was measured in 12 samples, electrical conductivity in 28 samples, using methods assuring errors of less than 10% and 2% respectively. The experimental data produced generally satisfied the formula of Skorokhod for conductivity as a function of porosity for a two-phase statistical mixture.

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USSR

UDC 669.71.053.4

YAKOVLEV, V. M., ADAMCHUK, I. P.

"Beresites and the Alumina Problem"

V sb. Vopr. geol. Sibiri (Problems of the Geology of Siberia -- collection of works), Tomsk, 1971, p 253 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G177)

Translation: At the Laboratory of Experimental Meteorology and Geochemistry of Tomsk University preliminary studies were made of the possibility of using beresites to obtain Al_2O_3 . After electromagnetic separation of the rock crushed to 0.1-1.0 mm, 35-40% high quality nepheline concentrate was obtained in which there was 31.2% Al_2O_3 , 1.6% Fe_2O_3 , and 1.8% FeO .

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YAKOVLEV, V.M.

medicine

29 Jan 71

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55. USSR

PRO-SOVIET SCIENCE

YAKOVLEV, V. M., Professor, NEROZOVA, N. N., Candidate of Medical Sciences and Scientific-Practical Session of Physiotherapists

Prima, Sovetskoye Zdravookhraneniye Kirgizii, No 3, 1970, pp 62-63

Translation: A scientific-practical session on the use of physical and resort fac-

tors for therapeutic and prophylactic purposes convened on 2-5 April 1970 in Osh.

The session, dedicated to the 100th anniversary of the birthday of V. I. Lenin, was organized by the Kirgiz Ministry of Health, the Kirgiz Scientific Research Insti-

tute of Pathology and Physiology, and by the Osh Oblast Department of Public Health. Over 200 people participated in the work of this session, including prominent from the Kirgiz Institute of Pathology and Physiology, Osh Oblast, scientific associates, assistants, physicians and secondary medical workers from various medical institutions, resorts and sanatoria in the western part of the republic.

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USSR

YAKOVLEV, V. M., et al., Sovetskoye Zdravookhraneniye Kirgizii, No 3, 1970, pp 62-63

The session was opened by Kirgiz Minister of Health V. A. Petrovskiy. In his speech he discussed the extremely important party and government decisions for the physical and organization in the nation, he stressed the major importance of the physiotherapy in rehabilitation and prophylaxis of various diseases and the primary role of the workers in general and various classes of the physiotherapeutic service of Osh Oblast. The participants at the session were welcomed by N. N. Petrovskiy, vice-president of the Oblast Executive Board, and he wished the participants and scientists success in their work.

The participants heard about 40 papers, 15 of which were delivered by practicing in Osh Oblast; they discussed the comprehensive analysis of qualitative and resort K. A. Yakovlev, Candidate of Medical Sciences and head of the Osh Oblast Public Health Department; Prof. N. T. Neruzova, Doctor of Medical Sciences, by assistants, Candidates of Medical Sciences, L. I. Golovtseva, junior scientific associate at the Kirgiz Scientific Research Institute of Pathology and Physiology, and chief physicians and prominent specialists of Osh Oblast.

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1/2 026
UNCLASSIFIED
TITLE--CHARACTERISTICS OF PERIPHERIC CIRCULATION IN ISCHEMIC CARDIAC
DISEASE -U-
AUTHOR--MOSIN, L.I., YAKOVLEV, V.M. PROCESSING DATE--11SEP70
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 104-107
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEART DISEASE, BLOOD VESSEL, ATHEROSCLEROSIS, CORONARY BLOOD
CIRCULATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1986/0979
CIRC ACCESSION NO--AP0102918
STEP NO--UR/0475/70/000/003/0104/0107
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102918
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE MAJORITY OF PATIENTS WITH ISCHEMIC CARDIAC DISEASE SHOWED AN INCREASED TONUS OF LARGE AND MEDIUM SIZED ARTERIAL TRUNKS AS WELL AS OF THE SYSTEM OF ARTERIOLES AND FINEST VESSELS. DISTURBANCES OF THE REGIONAL CEREBRAL BLOOD CIRCULATION HAVE ALSO BEEN FOUND. THE PATHOLOGICAL CHANGES OF THE PERIPHERAL CIRCULATION ARE APPARENTLY CAUSED BY ATHEROSCLEROTIC CHANGES OF THE BLOOD VESSELS AND THEIR FUNCTIONAL SPASM. IT IS CONCLUDED THAT IN ISCHEMIC CARDIAC DISEASE ONE FINDS ATHEROSCLEROTICALLY INDUCED FUNCTIONAL DISORDERS NOT ONLY OF THE CORONARY ARTERIES BUT ALSO OF OTHER PARTS OF THE ARTERIAL SYSTEM, SIGNIFICANTLY INFLUENCING THE CLINICAL MANIFESTATIONS AND COURSE OF THE MAIN DISEASE.

UNCLASSIFIED

USSR

UDC: 621.372.412

LOBANOV, Ye. M., CHUBAROV, L. B., YAKOVLEV, V. N., NEDOSTUPOV, V. N.,
BAGAYEV, N. M.

"Oscillation Frequency Temperature Dependence of Crystal Plates"

[Tr.] Tashkent. in-ta inzh. zh.-d. transp. ([Works] of the Tashkent Institute
of Railway Transportation Engineers), 1970, vyp. 66, pp 146-148 (from RZh-
Radiotekhnika, No 1, Jan 71, Abstract No 1D345)

Translation: An investigation is made into the effect which temperature
has on the frequency of oscillations of a quartz AT-section plate. An
expression is derived which can be used to evaluate the effect of the tem-
perature coefficients of the constants of elasticity of quartz as well as
the effect of the angle of plate cut-off on the temperature coefficient of
frequency. V. V.

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USSR UDC 616.005.1-092.9-06:616.155.1947-085.835.3-07:616.831-008.921.7

LEONOV, A. N. and YAKOVLEV, V. N. Department of Pathological Physiology,
Voronezh State Medical Institute

"Some Peculiarities of Nitrogen Metabolism in the Central Nervous System
After Acute Anemization and Hyperbaric Oxygen Therapy"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2,
1971, pp 42-28

Abstract: Hyperbaric oxygenation (2 atm for 40 min) of anemized rats (amount of blood let = 2.8% of the animal's body weight) normalized the level of alanine, threonine, and other free amino acids in the cerebral hemispheres and brainstem that had been altered by anemization. It also prevented the buildup of ammonia in the anemized brain seen in untreated animals in the agonal stage. More than two-thirds of the animals that received hyperbaric oxygen survived with motor activity and coordination of movements unimpaired, whereas all the untreated animals died within one hour of exsanguination. Thus, oxygen under high pressure had a corrective effect on the metabolic mechanisms of neurodynamics in the central nervous system despite the acute deficiency of blood.

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USSR

UDC: 621.374

YAKOVLEV, V. N., VOSKRESENSKIY, V. V., GENIS, A. A. et al.

"Handbook on Pulse Technology"

Spravochnik po impul'snoy tekhnike (cf. English above), Kiev, "Tekhnika", 1970, 654 pp ill. 2 r. 17 k. (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7G268 K)

Translation: The authors outline the theoretical principles of pulse technology and explain the physical aspect of phenomena. The computational formulas are given which are necessary in the design of pulse circuits and devices, as well as examples of their calculation. Methods are given for analysis of linear circuits as well as methods for synthesis of linear homogeneous and nonhomogeneous circuits for shaping and transforming square power pulses. Transient processes are investigated; a method is outlined for calculating linear and nonlinear tube and transistor amplifiers and pulse shapers. Square pulse generators (multivibrators, blocking oscillators and flip-flops) based on tubes, transistors, tunnel diodes and cold-cathode thyratrons are considered. Tube and transistor sawtooth voltage and current generators, pulse frequency dividers and generators with delayed feedback are described. Considerable attention is devoted to methods and circuits for stabilizing the time parameters of generated pulses. The handbook is written for engineers and tech-

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YAKOVLEV, V. N. et al., Spravochnik po impul'snoy tekhnike, Kiev, "Tekhnika", 1970

nicians working in the development and design of electronic and radio engineering equipment of various types, and may serve as a reference text in course and thesis planning for students in the appropriate field. 356 illustrations, 30 tables, bibliography of 250 titles. Resumé.

1/2 012 UNCLASSIFIED Y PROCESSING DATE--02OCT70
TITLE--A MANUAL ON PULSE TECHNOLOGY -U-
AUTHOR--(05)-YAKOVLEV, V.N., VOSKRESENSKIY, V.V., GENIS, A.A., DORONKIN,
YE.F., LITVINENKO, D.N.
COUNTRY OF INFO--USSR
SOURCE--A MANUAL ON PULSE TECHNOLOGY (SPRAVOCHNIK PO IMPUL'SNOY TEKHNIKE)
KIEV, TEKHNKA. 1970, 654 PP
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION
TOPIC TAGS--ELECTROMAGNETIC PULSE, PULSE AMPLIFIER, MULTIVIBRATOR,
BLOCKING OSCILLATOR, PULSE GENERATOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1991/0567 STEP NO--UR/0000/70/000/000/0001/0654
CIRC ACCESSION NO--AM0110365
UNCLASSIFIED

2/2 012
CIRC ACCESSION NO--AM0110365 UNCLASSIFIED PROCESSING DATE--02OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5.
CHAPTER I LINEAR CIRCUITS 7. II FORMING LINES 71. III THE
CORRELATION METHOD OF INVESTIGATION OF TRANSITION PROCESSES IN LINEAR
SYSTEMS 133. IV WIDE BAND AMPLIFIERS AND PULSE AMPLIFIERS 151. V
MULTIVIBRATORS WITH A BASIC MASTER TIME CIRCUIT 181. VI
MULTIVIBRATORS WITH EMITTER MASTER TIME CIRCUITS 204. VII TRANSISTOR
TRIGGERS 217. VIII TRANSISTOR BLOCKING GENERATORS 229. IX TUBE
MULTIVIBRATORS 248. X TUBE TRIGGERS 299. XI TUBE BLOCKING
GENERATORS 314. XII CONTROLLED GENERATORS OF SAWTOOTH VOLTAGE 344.
XIII AUTOGENERATORS OF SAWTOOTH VOLTAGE 393. XIV GENERATORS OF
SAWTOOTH CURRENT 447. XV PULSE GENERATORS WITH BRIDGE MASTER CIRCUITS
473. XVI PULSE FREQUENCY DIVIDERS 491. XVII PULSE GENERATORS WITH A
QUARTZ STABILIZATION OF THE FREQUENCY OF VIBRATIONS 525. XVIII PULSE
GENERATORS WITH LAGGING REVERSE CONNECTION 539. XIX PULSE CIRCUITS
ON TUNNEL DIODES 556. XX PULSE CIRCUITS ON GAS DISCHARGE INSTRUMENTS
595. LITERATURE 637. IN A COMPACT FORM YET FULLY ARE GIVEN THE
THEORETICAL BASES FOR THE PULSE TECHNOLOGY; EXPLAINED IS THE PHYSICAL
ASPECT OF THE PHENOMENA; CITED ARE MANY CALCULATING FORMULAE NECESSARY
IN DESIGNING BASIC PULSE CIRCUITS AND DEVICES AND ALSO EXAMPLES OF THEIR
CALCULATION. A GREAT DEAL OF ATTENTION IS GIVEN TO METHODS AND DIAGRAMS
OF STABILIZATION OF TEMPORARY PARAMETERS OF THE GENERATED IMPULSES. THE
MANUAL IS FOR ENGINEERS AND TECHNOLOGISTS DESIGNING ELECTRO AND
RADIOTECHNICAL EQUIPMENT FOR WIDE USE.

UNCLASSIFIED

USSR

UDC: 519.2

YAKOVLEV, V. P.

"Identification of Dynamic Objects From Data of Monoharmonic Tests Using the Methods of Sensitivity Theory"

Kiev, Algoritmiz. proizv. protsessov--sbornik (Algorithmizing Production Processes--collection of works), 1972, pp 114-135 (from RZh-Kibernetika, No 5, May 73, abstract No SV279 by the author)

Translation: Monoharmonic tests are a widely used form of testing objects to determine their dynamic characteristics. In the case where the object to be identified is linear with a rational fraction transfer function the problem arises of determining the powers of numerator and denominator and evaluating the coefficients of the transfer function from experimental data. A number of methods of solving this problem are known.

This paper discusses algorithms of identification using methods of sensitivity theory. Principal attention is given

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USSR

YAKOVLEV, V. P., Algorithmiz. proizv. protsessov, 1972, pp
114-135

to questions of optimizing calculations, determining the conditions of convergence of algorithms, and estimating the accuracy of results.

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USSR

UDC 621.396.677

SAZONOV, V. V., YAKOVLEV, V. P.

"Thinned Antenna Arrays with Low Side Lobe Level"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1970, vyp. 215, pp 310-325 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B34)

Translation: The suppression of the side loads of the directional pattern of an antenna array with a large number of identically excited elements by disconnecting part of the elements is analyzed.

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Acc. Nr. **AP0034394**

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 2, pp **108-112**
KINETICS OF SEMI-SYNTHETIC BROAD SPECTRUM PENICILLINS IN RABBITS

V. B. Yakovlev

A. V. Vishnevsky Institute for Surgery, Academy of Medical Sciences of the USSR.
Moscow

Studies on circulation of semi-synthetic penicillins, ampicillin and karbenicillin, in rabbits showed that both antibiotics were satisfactory absorbed to blood after intramuscular injections, providing maximum levels in 15 minutes. The concentrations of the penicillins in blood after their administration in a dose of 20 000 Units/kg were practically at the same level during the whole period of the experiment. After administration in a dose of 5000 Units/kg the karbenicillin levels during the first 30 minutes were higher, while later the levels of both antibiotics were the same. The retention time of ampicillin in blood was higher than that of karbenicillin. Experiments with intravenous administration of the antibiotics showed that a decrease in the logarithm of the antibiotic concentrations in blood was exponential and depended on time. The time of a two-fold decrease in the blood levels and the kidney clearance for ampicillin were lower, while the plasmic and the out-of-kidney clearance were higher, than those for karbenicillin. During 4 hours 52.1 per cent of ampicillin and 83.6 per cent of karbenicillin were excreted with urine, about 70 per cent of the above amounts being excreted during the first 30 minutes.

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USSR

UDC: 532.5:621.313.3:538.4

GORN, R. K., POLISHCHUK, V. P., SHEKHOVTSOV, V. I., and YAKOVLEV, V. S.

"Investigating Velocity and Pressure Fields in a Magnitodynamic Pump"

Riga, Magnitnaya gidrodinamika, No 1, 1973, pp 105-110

Abstract: This article describes experiments to investigate magnetohydrodynamic processes in the channel of a magnetodynamic pump. The experiments were done with liquid gallium and a transparent electrolyte consisting of 30% H_2SO_4 . From the distribution of electromagnetic forces thus obtained, the numerical computations of the velocity fields and the pressures were made using the Nav'ye-Stokes equations. The method of the investigations is described in earlier papers by the same authors named above (Materialy k V Tallinskomu soveshchaniyu po elektromagnitnym raskhodomeram -- Materials for the Fifth Tallin Conference on Electromagnetic Flowmeters -- Tallin, 3, 1971, 46) and a diagram of the cruciform active zone of the pump used in the tests is shown. The theory of the experimental situation is developed, and theoretical results are compared with experimental to show that the change in $1/2$

USSR

UDC: 532.5:621.313.3:538.4

GORN, R. K., et al, Magnitnaya gidrodamika, No 1, 1973, pp 105-110

pressure in the active zone and in the side channel of the pump
is the same in both.

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CSO: 1861-W

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- 122 -

YAKOVLEV, V.S.

SPRS 60634
31 November 1973

NONUNIFORMITY OF THE VELOCITY AND PRESSURE FIELDS IN A MAGNETOHYDRAULIC PUMP

[Abstract of a Paper by N. K. Gorn, V. P. Poleshchik, Y. I. Shestov, V. S. Yakovlev given at a Magnetohydrodynamic Conference, pp 115-119]

In the papers devoted to the investigation of magnetohydraulic pumps [1], the complexity of the flow structure of a liquid-metal in the core has been noted, and a proposition has been stated regarding the presence of turbulence there. In order to discover the nature of the flow in the core and the channels adjacent to it, experimental studies were made on models with liquid gallium and a transparent electrolyte (30% H₂SO₄), and a numerical calculation was made of the velocity and pressure fields based on the Navier-Stokes equation with the given distribution of the electromagnetic forces. The procedure used in the study in the gallium loop is described in [2]. The velocities in the electrolyte were measured optically by photographing the visualized flow. A numerical study was made of the equations of laminar flow of a viscous liquid [3].

Introducing the current function ψ and the eddy function Ω , we obtain the system of differential equations

$$\frac{\partial^2 \psi}{\partial x^2} + \frac{\partial^2 \psi}{\partial y^2} - \frac{\partial \Omega}{\partial y} = -\frac{4\pi}{c} \frac{\partial \psi}{\partial x} \quad (1)$$

where

$$\Delta \psi = \nabla^2 \psi, \quad M = \frac{4\pi \sigma}{c}, \quad (2)$$

$R_0 = U_0 e / v_0$ is the halfwidth of the transport channel; U_0 is the maximum velocity at the input to the core; F_0 is the scale of the electromagnetic force; $\partial \psi / \partial y$ is the variation of the electromagnetic force in the lateral channel.

The numerical calculations were performed for the core with different ratios of the dimensions l/a and H/R_0 . In Figure 1, a, the calculated pictures of the movement of the liquid in a crosswise core ($R_0 = 600$, $M = 3 \cdot 10^5$) and the

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UDC 621.313.333.538.4

SHEKHOVTSOV, V. I., POLISHCHUK, V. P., GORN, R. K., and YAKOVLEV, V. S.

"Field of a Magnetodynamic Pump Stator"

Riga, Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 62-70

Abstract: The problem is presented on determining the electromagnetic field of a stator in the active zone of a magnetodynamic pump, approximated by a thin cross-shaped plate located between the ferromagnetic surfaces and consisting of individual sections with varying equivalent parameters. The general boundary conditions were formulated considering pump design and arrangement of stator windings. The Helmholtz equation was solved for two components of the complex current density in the "cross" with infinitely long rays by the Fourier-Lamb method using superposition of the fields in the central region of the "cross." Simplified solutions were obtained, considering the relationships in actual pumps for the pole and an infinitely wide electromagnet. Uniform relationships, found in the latter, enter into the general solutions for the "cross" and poles, the remaining members of which take into account the longitudinal and lateral fringe effects. A comparison of the experiment and calculation for a solid brass coil showed the

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USSR

SHEKHOVTSOV, V. I., et al., Magnitnaya Gidrodinamika, No 4, Oct-Dec 72,
pp 62-70

acceptability of the field calculation in the pump channel for the experimentally found coefficient of current spread and equations for the pole.
4 figures, 7 bibliographic references.

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USSR

UDC: 669.293.5

GULYAYEV, B. B., YAKOVLEV, V. T., VINNIK, P. G., MIKLUKHIN, D. Ye.

"Selection of Alloying Elements in the Development of Casting Alloys Based on Niobium"

Sb. Nauch. Tr. Tomsk. Inzh.-Stroit. In-t [Collected Scientific Works of Tomsk Institute of Construction Engineering], 1973, No 21, pp 3-11 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 81721, by L. Petrova).

Translation: A summarization is presented of existing state diagrams of binary systems of Nb-based alloys, and predictions are made for systems not studied. The analysis allows an estimation of the nature of the interaction of Nb with the elements and determination of their effects on increasing and decreasing the required properties of alloys being developed. 8 figures, 1 table, 9 biblio. refs.

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USSR

UDC: 621.317.755

SITNIKOV, L. S., TOKOVENKO, S. Ye., UTYAKOV, L. L., YAKOVLEV, V. T.

"A Time-Mark Generator for a Cathode-Ray Oscilloscope"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 4, Feb 71, Author's Certificate No 292243, Division H, filed 20 Jan 69,
published 6 Jan 71, pp 150-151

Translation: This Author's Certificate introduces a time-mark generator for a cathode ray oscilloscope. The device contains a pulse light source, a shaper, series-connected capacitor storage counters with two inputs, a source of stable-frequency signals and a selector switch. As a distinguishing feature of the patent, in order to simplify the device, connected to one of the inputs of the capacitor storage counters is a series circuit comprised of a synchronizing pulse oscillator and reference phase pulse oscillator. The output of this last pulse oscillator is connected through a synchronizer to a coincidence module whose second input is connected through the selector switch to the outputs of the capacitor storage counters, and the output of the coincidence module is connected to the shaper.

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USSR

UDC:521.719.2:621.378.9

VOLKONSKIY, V. B., NESTEROVA, Z. V., POPOV, Yu. V., CHERNYAYEV, A. I.,
YAKOVLEV, V. V.

"A Laser Rangefinder with Super-High-Frequency Modulation of Radiation
and Frequency Conversion in the Photoreceptor"

Optiko-Mekhanicheskaya Promyshlennost', No 10, Oct 73, pp 22-25

Abstract: In known light rangefinders with SHF modulation of optical radiation, phase detection of the signal received is performed in the light modulator. The operating range of a laser rangefinder can be significantly increased by attaching a reflecting film to the object, the distance to which is to be measured. This article presents the results of experimental studies of a laser rangefinder with SHF amplitude modulation of the radiation, the modulation frequency converter in the photoreceptor and phase detection at low frequency. The laser uses a helium-neon laser operating at 755 Mhz. The maximum range measurement error when a film reflector is used at a range of 25 m is 0.5 mm, with a signal/noise ratio of at least 10. Automatic recording of the results of measurements on a strip-chart recorder is possible.

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USSR

YAKOVLEV, V. V., FEDOROV, R. F.

"Computer Elements with Probabilistic Representation of Information"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 5, pp 80-84 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V616, by the authors).

Translation: The principles of construction of certain elements of computer equipment using the probabilistic method of coding of information are studied. The relationship between the accuracy and speed of these elements is estimated. Results of mathematical modeling are presented.

USSR

UDC 539.3

SELEZNEV, V. G., YAKOVLEV, V. V.

"Study of the Bending of Plates by the Holographic Interferometry Method"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3
(Use of Lasers in Modern Engineering and Medicine. Parts 2-3 -- Collection of
Works), Leningrad, 1971, pp 47-50 (from RZh-Mekhanika, No 3, Mar 72, Abstract
No 3V272)

Translation: A schematic diagram and parameters are given for a device for
studying the bending of plates by the holographic interferometry method. The
device is mounted on a concrete plate weighing about 1000 kg which is placed
on two rubber balloons filled with air to exclude the effect of field oscilla-
tions of the location. Deflections were measured by the double exposure method.
Construction of an interpolation polynomial in terms of known values of the
deflection is proposed to determine derivatives of the bending in terms of
orthogonal coordinates. V. P. Netrebko.

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USSR

UDC 621.311.25:621.039.003

MIKHAL'TSEV, V. YE., SUROVTSEV, I. G., YAKOVLEV, V. YA.

"The Economy of a Power Plant with a Chemically Reacting Working Medium under Partial Power Operating Conditions"

Dissotsifiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i Tekhn. Press, 1970, pp 138-144 (from RZh-Elektrotehnika i Energetika, No 5, May 1971, Abstract No 5U25)

Translation: A study was made of the quantitative and qualitative methods of regulating a plant operating with respect to a gas-liquid cycle. The operating peculiarities of the regenerator of the plant are indicated for these regulating procedures. The results of the calculational research indicating the great economy of the plant under uncalculated conditions are presented for the quantitative procedure, and the variation of the parameters of the plant for both regulating procedures is given. The economy of the plant with regeneration at high and low pressures is compared for qualitative regulation. There are 4 illustrations and a 3-entry bibliography.

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USSR

UDC 533.916

BASOV, N. G., Academician, BOYKO, V. A., DROZHBIN, Yu. A., ~~ZAKHAROV, S. M.~~
KROKHIN, O. N., SKLIZKOV, G. V., and YAKOVLEV, Y. A., Physics Institute imeni
P. N. Lebedev of the Academy of Sciences USSR, Moscow

"Investigation of the Initial Stage of the Gas-Dynamic Dispersion of a Laser
Jet Plasma"

Moscow, Doklady Akademii Nauk SSSR, Vol 192, No 6, 21 Jun 70, pp 1248-1250

Abstract: Since previous experiments study the radiation spectra and gas-dynamic parameters of a plasma in large time intervals exceeding the length of the laser pulse, the present study covers the dynamics of the motion and the kinetics of ionization processes in a laser plasma with a high time resolution. It is noted that the gas-dynamic motion of a plasma accompanying the high-temperature heating of condensed material with focused laser radiation has been investigated because of the importance of the possible use of a laser plasma for thermonuclear fusion, as a source of multicharged ions for spectroscopic studies of astrophysical interest, for accelerator technology, etc. The study of the dispersion of a plasma during the action of a laser pulse and at distances r from the surface of the target comparable with the diameter d of the focusing spot of the laser radiation made it possible to trace different phases of the motion of the material,

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USSR

BASOV, N. G., et al, Doklady Akademii Nauk SSSR, Vol 192, No 6, 21 Jun 70, pp 1248-1250

including the initial stage of heating and the "freezing" of the ionization state of the plasma. The radiation of a neodymium laser with an energy of 10 j and a half-length of 15 nsec was focused with a 5-cm lens on the surface of a carbon target in a vacuum of 10^{-6} torr, and the structure of the dispersing plasma was investigated on the basis of its luminosity. Space-time diagrams of ion dispersion were obtained from analysis of the data (see Fig.); for $r \leq 1$ mm the plasma emits a continuous spectrum in the visible region (lines are observed only at distances $r \geq 1$ mm). As the distance increases to 10 mm, a break is observed in the luminosity of ions CVI and CV from the target. The regions occupied by ions of different charges partially intersect, although there are no discontinuities in the density of material in the plasma. The following model of the gas-dynamic motion of the heated matter is constructed from an analysis of the experimental data: The plasma moves from the region of heating ($r < d$), where the electron temperature $T_e \sim 120$ ev on the basis of measurements of the recombination x-radiation, into the vacuum perpendicular to the surface with a velocity $u \sim 6 \cdot 10^6$ cm/sec. In this region the velocity of the plasma is close to the speed of sound and the ion temperature corresponding to this

USSR

BASOV, N. G., et al, Doklady Akademii Nauk SSSR, Vol 192, No 6, 21 Jun 70, pp 1248-1250

velocity is ~ 125 ev. A considerable acceleration of the plasma is observed at distances $r \leq 1$ mm. The velocity here is several times greater than the initial. The effect of "freezing" is obtained, since the density drops as $u^{-1}r^{-2}$ along the trajectory of the ion and the recombination time becomes much greater than the characteristic dispersion time. In one process the freezing of the maximum degree of ionization occurs several nanoseconds after the beginning of the motion of the "elementary volume" of the plasma. This freezing process also occurs for the remaining ions. The laminar structure of the jet which is observed in photographs is explained on this basis. The energy lost by the plasma contained in the region $r \leq d$ to radiation in the range $20-100 \text{ \AA}$ over a time of 40 nsec is estimated to be about 0.5 joule.

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USSR

KOL'TSOV, V. I., KHACHATUROV, A. A., YAKOVLEV, Ye. I.

"Properties of Continuity of a Sampling Correlation Function and Errors in its Definition"

Tr. Mosk. Avtomob.-Dor. In-ta [Works of Moscow Institute of Motor Vehicles and Highways], 1972, No 41, pp 55-60 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V242, by V. Yurinskiy).

Translation: For large T, approximate formulas are produced for the dispersions

$$\bar{k}(\tau) = \frac{1}{T} \int_0^T x(t)x(t+\tau) dt$$

and the first and second differences \bar{k} . Process $x(t)$ is a Gaussian stable process.

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USSR

SHANDITSEV, V. A., VERESHCHAGIN, L. F., YAKOVLEV, YE. N., GRAZHDANKINA, N. P.,
and ALAYEVA, T. I., Institute of High-Pressure Physics, Academy of Sciences
USSR, Akademygoreodok, Moscow Oblast

"Electron Magnetic Resonance Study of Chromium Telluride at Pressures up to
50 Kbar"

Leningrad, Fizika Tverdogo Tela, Vol 15, Vyp 1, Jan 73, pp 212-215

Abstract: The electron magnetic resonance method ($\lambda \approx 3.2$ cm) was used to study the magnetic transition in chromium telluride at pressures up to 50 kbar and temperatures of 100-360° K. It was found that the linear variation of the Curie point with pressure continues up to 25 kbar. At pressures from 30+4 and up to 50 kbar, the resonance line characteristic of the ferromagnetic phase of CrTe is not observed in the 100-300° K temperature range. The disappearance of the resonance line of the ferromagnetic phase may be due to the appearance of antiferromagnetic ordering at pressures above 30 kbar in chromium telluride, although the antiferromagnetic resonance line cannot be observed in this frequency region.

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Stress, Strain and Deformation

USSR

KASATOCHKIN, S. V., ALAYEVA, T. I., YAKOVLEV, YE. N., and VERESHCHAGIN, L. F.,
Institute of High-Pressure Physics, Academy of Sciences USSR, Akadengorodok,
Moscow Oblast

"Pressure Change of Cubic Splitting Parameter in EPR Spectrum of Gd^{3+} Ion in
Fluorite-Type Crystals"

Leningrad, Fizika Tverdogo Tela, Vol 15, vyp 1, Jan 73, pp 312-313

Abstract: The authors studied the effect of hydrostatic pressure (up to 10
kbar) on the spin hamiltonian parameters of the Gd^{3+} ions in fluorite-type
crystals. CaF_2 , SrF_2 , and BaF_2 doped with Gd^{3+} ions (0.1 at. percent) were
studied. It was found that the parameter b_4 varies according to the law

$$b_4 \approx a^n,$$

where $n \approx 7$. Previous experiments on the variation of the Gd^{3+} ion EPR
spectrum with temperature in fluorite-type crystals (T. REVAY) give the value
 $n \approx 15$.

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USSR

KASATOCHKIN, S. V., et al., Fizika Tverdogo Tela, Vol 15, vyp 1, Jan 73, pp 312-313

Thus, there are great differences in the variation law for the parameter b_4 , depending on the way in which the change in the lattice parameter is realized.

The authors thank S. A. AL'TSHULER and B. Z. MALKIN for discussing the results of the work, L. D. LIVANOVA and M. S. ORIOV for providing quality samples, and YU. A. TIMOFEYEV for frequent advice and assistance in the work.

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USSR

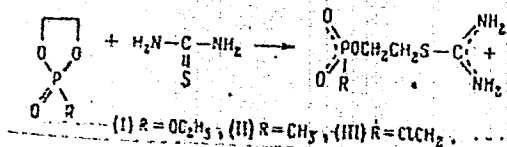
UDC 547.26'118

MIZRAKH, L. I., YAKOVELEV, YUKHNO, YE. M., and MAMONOV, V. I.

"Phosphorus-containing Derivatives of Isothiuron. II. Cleavage of Dioxaphospholane and Dioxaphosphorene Rings by Thiocarbamide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1700-1705

Abstract: Thiocarbamide (TCA) will react with 1,3,2-dioxaphospholane by opening the ring in the following manner:



The R exerts a significant influence on the ease of alkylation, in the order ClCH₂ > OC₂H₅ > CH₃. 4-Methyl-1,3,2-dioxaphospholanes and 2-(formamidentio)-ethyl esters of phosphorous acid react with TCA in an analogous manner. Seven compounds were prepared by TCA reactions. These were characterized by elemental composition and IR, UV, and NMR spectra.

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1/2 034 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SYNTHESIS OF POLYCRYSTALLINE FORMATIONS OF CUBIC BORON NITRIDE -U-
AUTHOR--(05)-VERESHCHAGIN, L.F., YAKOVLEV, YE.N., SLESAREV, V.N.,
VORFOLOMEYEVA, T.D., GLADKAYA, T.S.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 745-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--BORON NITRIDE, CRYSTALLOGRAPHY, CHEMICAL SYNTHESIS, HIGH
PRESSURE R AND D
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1049 STEP NO--UR/0020/70/191/002/0345/0346
CIRC ACCESSION NO--AT0119916
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119916

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SYNTHESIS OF STRONG POLYCRYST.
FORMATIONS OF THE CUBIC BN AND OF POLYCRYSTALS OF A GIVEN SHAPE IS
REPORTED.

UNCLASSIFIED

Measuring, Testing, Calibrating

USSR

UDC 536.24:536.42

KIRICHENKO, YU. A., SOLYANKO, V. F., TSYBUL'SKIY, V. V., YAKOVLEV, YE. V.

"Device for Studying Heat Exchange when Boiling Cryogenic Liquids"

Tr. Fiz.-tekhn. in-t nizek. temperatur AN USSR (Works of the Physico-Technical Low-Temperature Institute of the Ukrainian SSR Academy of Sciences), 1970, vyp. 1, pp 255-264 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B689)

Translation: A device permitting the study of a broad class of heat exchange problems during boiling and investigation of heat exchange during boiling of both pure oxygen and oxygen containing a dissolved gas in the temperature range of 65-120° K and at pressures of 0.025-10 absolute atmospheres insuring visual observation and movie photography of the processes taking place is described. The device comprises an operating vessel of 5 liter capacity surrounded by three shells forming buffer, thermostating and vacuum tanks, successively. The vacuum tank and the thermostating tank filled with liquid nitrogen form a special type of dewar protecting the operating vessel from external heat fluxes and insuring the required temperature level of the liquid in the working vessel by pumping nitrogen vapor out of the thermostating tank. Cooling the gas fed to the working vessel and dissolving it in a liquid are carried out by means of a bubbling and circulating system placed in the thermostating and vacuum tanks. The buffer

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USSR

KIRICHENKO, YU. A., et al., Tr. Fiz.-tekhn. in-t nizk. temperatur AN USSR, 1970, vyp. 1, pp 255-264

tank separates the working vessel from the thermostating vessel and can be evacuated or filled with the heat exchange gas. The working vessel and the shells of all the surrounding tanks are equipped with peepholes with flat glass.

Preliminary heat exchange data for the boiling of liquid nitrogen from a horizontal tubular steel heater were obtained on the device. The design of the device permits studies to be performed during boiling not only of oxygen but also a number of other cryogenic liquids. The bibliography has 10 entries.

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Acc. Nr:

AP0045085

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR0109

A70-22411 Features of He-Ne laser emission modulation through the active element's excitation source (Osobennosti moduliatsii izlucheniia He-Ne OLG cherez istochnik возбуждениia aktivnogo elementa). E. P. Ostanchenko, B. A. Timofeev, and Iu. M. Iakovlev. *Radiotekhnika i Elektronika*, vol. 15, Jan. 1970, p. 143-146. In Russian.

Investigation of the features of He-Ne laser emission modulation by varying the discharge current through the tube to cause changes in the output power. Attention is given to the effect of gas pressure at different mixture ratios on the modulation, and the role of the ballast resistor is examined. Recommendations are given for the excitation circuit, ballast resistance, and gas mixture and pressure from the viewpoint of obtaining a maximum modulation depth and a maximum amplitude of the modulated signal.

T.M.

ALS

REEL/FRAME
19771998

USSR

UDC: 621.396.6:621.318(088.8)

RUBAL'SKAYA, E. V., GENDELEV, S. Sh., RUHINSHTEYN, B. Ye., YAKOVLEV, Yu. M.
TITOVA, A. G.

"A Charge for Growing Ferrite Single Crystals"

USSR Author's Certificate No 253953, filed 4 May 67, published 30 Apr 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V422 P)

Translation: This Author's Certificate introduces a charge composition which makes it possible to increase the saturation induction of ferrites (90.5 T) while retaining a narrow ferromagnetic resonance line. The charge consists of higher oxides of iron, zinc, lead and boron (13.3-16.0, 0.3-1.0, 68.1-68.7 and 10.4-11.0 wt.% respectively), and Li_2CO_3 . Heat treatment conditions are described. Also covered by the patent is a charge composition for making ferrites with a saturation induction of up to 0.44 T; a distinguishing feature of this composition is the substitution of gallium oxide for zinc oxide. The proportions by weight are also changed. H. S.

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1/3 036
TITLE--FERROMAGNETIC RESONANCE AND NONLINEAR EFFECTS IN LITHIUM AND ZINC
FERRITE SINGLE CRYSTALS -U-
AUTHOR--(04)--YAKOVLEV, YU.M., VINNIK, M.A., RUBALSKAYA, E.V., LAPOVOK, B.L.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 866-72
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--SINGLE CRYSTAL, FERROMAGNETIC RESONANCE, LITHIUM, FERRITE
CRYSTAL, CRYSTAL LATTICE STRUCTURE, MAGNETIC MOMENT, BORON OXIDE, LEAD
OXIDE, THERMAL EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0620
CIRC ACCESSION NO--AP0105600
STEP NO--UR/0181/70/012/003/0866/0872
UNCLASSIFIED

273 036

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105600
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STATIC MAGNETIC PROPERTIES WERE
 INVESTIGATED OF SINGLE CRYSTALS OF LI AND ZN FERRITE, LI SUB0.5(1 MINUS
 X)FE SUB0.5(1 MINUS X)ZN SUBX FE SUB2 O SUB4, WHERE X EQUALS 0, 0.1,
 0.18, AND 0.24. THE CRYSTALS WERE GROWN FROM PBO PLUS B SUB2 O SUB3.
 ON VARIATION OF THE COMPN., THE LATTICE PARAMETER VARIES IN THE LIMITS
 (8.331-8.367) PLUS OR MINUS 0.001 A. THE MAGNETIC MOMENT WAS MEASURED
 BY THE METHODS OF WEISS AND FARADAY IN FIELDS IS SMALLER THAN OR EQUAL
 TO 10 KOE. REPLACEMENT OF PART OF THE TETRAHEDRAL FE AND LI IONS BY ZN
 IONS LEADS TO AN INCREASE IN THE MAGNETIC MOMENT AND DECREASE IN THE
 CURIE TEMP. OF THE COMPD. AT X EQUALS 0.24, CRYSTALS WERE OBTAINED WITH
 MAGNETIZATION, 4PIM EQUALS 4900 G AT NORMAL TEMP. THE EXPTL. DATA ON
 THE MAGNETIC MOMENT AND THE CURIE TEMP. ARE COMPARED WITH THE DATA
 OBTAINED IN TERMS OF THE MODEL OF NEEL AND GILIO. MEASUREMENTS OF THE
 FERROMAGNETIC RESONANCE OF THE SYNTHETIC CRYSTALS ALLOWED ONE TO DET.
 THE 1ST AND 2ND ANISOTROPY CONSTS. (K SUB1 AND K SUB2) AS FUNCTIONS OF
 TEMP. AND ALSO TO OBSERVE NONLINEAR 1ST ORDER PROCESSES AT COINCIDENCE
 OF THE RESONANCES AT 9.1 GHZ. THE RATHER WEAK DEPENDENCE OF K SUB1 ON
 THE COMPN. INDICATES THAT THE CONTRIBUTION OF THE I ION MECHANISM OF
 ANISOTROPY IN THE INVESTIGATED SOLID SOLNS. IS SMALL. TEMP.
 DEPENDENCES ARE GIVEN OF THE WIDTH OF THE RESONANCE LINE MEASURED FOR
 SPECIMENS OF 3 COMPNS. UNDER VARIOUS CONDITIONS OF POWER AND IN VARIOUS
 CRYSTALLOGRAPHIC DIRECTIONS. THE LIMITING FREQUENCY OF THE REGION OF
 CONINCIDENCE IS PRACTICALLY INDEPENDENT OF THE ORIENTATION OF THE
 SPECIMEN IN THE (110) PLANE RELATIVE TO THE CONST. MAGNETIC FIELD.

UNCLASSIFIED

3/3 036

CIRC ACCESSION NO--AP0105600

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--MIN. THRESHOLD POWER AT "NORMAL" TEMP. AT 9.1 GHZ FOR
THE SPECIMEN WITH X EQUALS 0.24 (4PIM EQUALS 4900 G) IS 30 MUW.

UNCLASSIFIED

89

USSR

UDC 669.141.241.4:621.746

YAKOVLEV, YU. N., Dnepropetrovsk Metallurgical Institute

"Effect of Hydrodynamic Processes on Secondary Oxidation of Steel in Pouring"

Moscow, Stal', Jun 73, No 6, pp 509-512

Abstract: The analysis of an empirical function derived from processing experimental data of a jet of liquid steel discharging from the outflow height H of a vessel of diameter d ($H/d=8-60$ ca- libers) shows that the relative air volume, injected by the jet into the metal, decreases with increasing H and increasing outflow velocity and with decreasing d . The discharging steel jet has a wave-like profile, its radius R changes sinusoidally, and it captures atmospheric air in the troughs of waves. The air volume entrained by the jet into the metal depth is calculated from geometrical considerations. In experiments on a hydraulic model with a facility for measuring the volume of captured air it was found that, in addition to the calculated volume, a 20% greater volume is being drained from the atmosphere. This can result in increase of O_2 -content

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USSR

YAKOVLEV, YU. N., Stal', Jun 73, No 6, pp 509-512

in metal by 0.007-0.0040%. The inflow depends on H/d , the breaking degree of the jet by the stopper, and a series of other factors. The diffusion of oxygen through the metal surface into the mold is approximately 10 times lower than the diffusion through the jet. Six figures, seventeen formulas, ten bibliographic references.

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- 65 -

USSR

UDC: 621.382

AKPEROV, Ya. G., IMENKOV, A. N., TSARENKOV, B. V., YAKOVLEV, Yu. P., "Order of Lenin" Physicotechnical Institute imeni A. F. Ioffe

"A Semiconductor Induction Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 73, Author's Certificate No 339248, Division H, filed 3 Aug 70, published 8 Feb 73, pp 194-195

Translation: This Author's Certificate introduces: 1. A semiconductor induction element which is a two-layer semiconductor structure with ohmic contacts. As a distinguishing feature of the patent, the Q of the controlled inductive reactance is sharpened and the range of the working frequency is extended by making the semiconductor structure from two different semiconductive materials of the same conductivity type. One of the layers has a fixed chemical composition with respect to thickness, and the other is a semiconductor of variable chemical composition. The width of the forbidden zone at the boundary of the semiconductor layers is greater than the width of the forbidden zone of the first semiconductor, and it gradually decreases as the ohmic contact is approached. 2. A modification of this element dis-

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AKPEROV, Ya. G. et al., USSR Author's Certificate No 339248

tinguished by the fact that the two-layer structure consists of a layer of GaAs and a layer of a solid solution of $\text{Al}_x\text{Ga}_{1-x}\text{As}$ of variable composition. On the boundary of the interface between these, x is greater than 0.3; on the boundary between the solid solution and the ohmic contact, x is less than 0.3.

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USSR

UDC 621.315.592

TSARENKOV, B. V., AKPLEOV, YA. G., VERESHCHAK, N. I., YEVSTROPOV, V. V.,
IMENKOV, A. N., YAROVLEV, YU. P. Physicotechnical Institute imeni A. F. Ioffe
of the USSR Academy of Sciences, Leningrad

"Diode Sources of Red Light made of Variband $Ga_{1-x}Al_xAs:Si$ p-n- structures"
Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 921-925

Abstract: The results of the development and study of the properties of semiconductor sources of red light based on variband $Ga_{1-x}Al_xAs$ p-n-structures alloyed with Si are discussed. These p-n-structures were created by epitaxial growth of a solid solution of $Ga_{1-x}Al_xAs:Si$ from a liquid Ga-Al-As-Si solution on an n-Ga-As substrate with cooling; the composition of the $Ga_{1-x}Al_xAs$ epitaxial layer was smoothly varied in the direction of growth so that the width of the forbidden zone decreased from the boundary with the substrate with a gradient of $(2-3) \cdot 10^{-2}$ eV/micron. The thickness of the p-region in the light diodes was 20-31 microns, and the n-region was 60-70 microns. Radiation was generated perpendicular to the plane of the p-n-junction or through the p-layer or through the n-layer of the p-n-structure.

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SSR

UDC 621.315.592

TSARENKOV, B. V., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 921-925

The electric and electroluminescent characteristics of the $\text{Ga}_{1-x}\text{Al}_x\text{As}$ p-n-structures with an area of 0.5 mm^2 at room temperature are as follows: 1) the forward current increases exponentially with an increase in voltage ($I \sim \exp(qV/\beta kT)$ where $\beta = 1.4-1.6$) to voltages of 1.5-1.6 volts, and then it increases linearly (current cutoff voltage 2.0-2.1 volts); 2) the radiation spectrum consists in only one band with a peak energy of 1.72-1.76 electron volts which does not shift with current variation; 3) with an increase in current the radiation power first increases superlinearly (to 2 amps/cm²) and then linearly (to 100 amps/cm²); 4) the external quantum yield of the radiation is 0.5-0.6 percent for 20 milliamps and 0.6-0.8 percent for 200 milliamps; 5) the characteristic times of the transient electroluminescent processes decrease with an increase in current; they are 200 nanoseconds for small currents and 100 nanoseconds for large currents.

These light sources do not become degraded for at least 1,000 hours of operation with a forward current of 20 milliamps and an ambient temperature of 70°C.

USSR.

UDC 621.382.3

TSARENKOV, B.V., AKPEROV, YA.G., IMENKOV, A.N., YAKOVLEV, YU.P. [Physico-Technical Institute imeni A.F. Ioffe, Academy of Sciences, USSR, Leningrad]

"Temperature Dependence Of Edge Photoluminescence Of $n\text{-Ga}_{1-x}\text{Al}_x\text{As}$ Solid Solution Epitaxial Layers"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 677-681

Abstract: The edge photoluminescence is studied of crystals of $n\text{-Ga}_{1-x}\text{Al}_x$ ($0 < x \leq 0.4$) in a wide temperature range ($77 \div 370^\circ \text{K}$) for determination of the empirical dependences of the energy of the maximum ($h\nu_m$), halfwidth ($\Delta\nu$) and the photon flux (Φ) of the edge radiation band, on the temperature T . The photoluminescence spectra of the solid solutions investigated contained only one band. The band was nonsymmetrical: the long-wave slope is steeper than the short-wave. The energy of the maximum of the band is changed from 1.45 to 1.90 e.v. (300°K) as a function of the composition of the solid solution with a change of x from 0.01 to 0.4; $h\nu_m$ is decreased with an increase of the temperature in the interval $77 \div 370^\circ \text{K}$ and with temperatures above $100 \div 125^\circ \text{K}$ the dependence of $h\nu_m$ on T can be approximated by the straight line $h\nu_m = h\nu_{m0} - \alpha_U T$, where $h\nu_{m0}$ is the characteristic energy resulting from extrapolation of the linear dependence $h\nu_m(T)$ in the interval $100 \div 370^\circ \text{K}$ to absolute zero temperature and α_U is the temperature coefficient which does not depend on the composition

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TSARENKOV, B.V., et al, Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 677-681

of the solid solution and is equal to $4.8 \cdot 10^{-4}$ e.v./degree. The halfwidth of the radiation band (δ) is decreased with an increase of x ; δ is linearly increased with an increase of temperature in the interval $77 \div 370^\circ$ K. The temperature coefficient of the halfwidth of the band practically does not depend on the composition of the solid solution and is equal to $1 \div 1.3$ of the Boltzmann constant. The photon flux of the radiation band of solid solutions with a fixed level of excitation is exponentially decreased with an increase of temperature in the temperature range $77 \div 370^\circ$ K. The mechanism of the radiative recombination is explained by a comparison of the energy of the maximum radiation spectra with a wide forbidden zone (E_g) of solid solutions of various compositions which are determined by the spectra of the short-circuit photocurrent of the structure $\text{Au-Ga}_{1-x}\text{Al}_x\text{As}$ with a metal-semiconductor barrier. The edge of the photocurrent spectra has a form characteristic of the band of absorption of light at the free excitons. Because the energy of the maximum of the photoluminescent spectra proved to be approximately equal to the width of the forbidden zone, determined by the energy of the free excitons, then this made it possible to assume that the radiation observed is inherent and not extrinsic. Because the halfwidth of the radiation band at high temperatures proved to be smaller than expected for

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USSR

TSARENKOV, B.V., et al, Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 677-681

interband transition, then this made it possible to assume that the inherent radiation contributes an important portion of the annihilation of the free excitons. The authors are grateful to D.N. Nasled for his interest and attention to the work. 4 fig. 15 ref. Received by editors, 2 Aug 1971.

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USSR

UDC 621.382.2

GOL'DBERG, YU. A., RAFIYEV, T. YU., TSARENKOV, B. V., YAKOVLEV, YU. P.

"Surface-Barrier Metal-n-Ga_{1-x}Al_xAs Structures and Their Energy Diagrams"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 462-466

Abstract: The surface-barrier metal (m) and semiconductor (s) structures based on solid solutions of n-Ga_{1-x}Al_xAs of different composition ($0 \leq x \leq 0.4$) alloyed with tellurium were created by chemical deposition of the metals (Au or In) on the surface of the solid solution. The dependence of the inverse capacitance of these m-s-structures on the voltage is linear, and by the slope of this straight line, the electron concentration in the solid solutions of different composition was determined. The dependence of the direct current on the voltage for voltages less than the contact potential difference is exponential, and the dimensionless coefficient $\beta = 1.01-1.15$.

In order to construct the energy diagram of the metal and solid solution, the square root of the short circuit photocurrent of the m-s-structures as a function of the energy of the incident photons was measured. This relation comprises two linear sections. By extrapolation of these sections to the zero value of the photocurrent, the height of the barrier and the width of the forbidden band of the solid solution were determined. On variation of the

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USSR

GOL'DBERG, YU. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 462-466

composition of the $n\text{-Ga}_{1-x}\text{Al}_x\text{As}$ solid solution, the height of the metal-semiconductor potential barrier is directly proportional to the width of the forbidden band of the solid solution, and the proportionality factor is close to 2/3. The energy diagram of the metal- $n\text{-Ga}_{1-x}\text{Al}_x\text{As}$ structures arises mainly from the surface levels of the semiconductor a distance of 2/3 of the width of the forbidden band from the bottom of the conduction band and not from the work function of the metal and the energy of the electron affinity of the semiconductor.

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NAV/MISC /TRAN-3891-73
 DEPARTMENT OF THE NAVY
 NAVAL INTELLIGENCE SUPPORT CENTER
 TRANSLATION DIVISION
 4301 SUTLAND ROAD
 WASHINGTON, D.C. 20390

YAKOVLEV, Yu. S.

CLASSIFICATION: UNCLASSIFIED
 APPROVED FOR PUBLIC RELEASE, DISTRIBUTION UNLIMITED

TITLE: Dynamic Loads in Underwater Explosion
 Dinamicheskiye nagruzki v podvodnom varyye

AUTHOR(S): Zamyshlyayev, Z. V., and Yakovlev, Yu. S.

PAGES: 463

SOURCE: Sudostroyeniye, Leningrad, 1967
 Complete Translation

ORIGINAL LANGUAGE: Russian

TRANSLATOR: C

NISC TRANSLATION NO. 3391

APPROVED: PTK

DATE: 2 February 1973

USSR

UDC 517.9:539.2

LOBYSEV, V. L., YAKOVLEV, YU. S.

"The Method of Asymptotically Equivalent Functions and Its Application to the Solution of Certain Problems in the Mechanics of Continuous Media"

Leningrad, V sb. Probl. mekhan. tverd. deformir. tela (Problems in the Mechanics of a Solid Deformable Body -- collection of works), "Sudostroyeniye," 1970, pp 239-250 (from RZh-Matematika, No 7, Jul 1970, Abstract No 7B462)

Translation: An approximation method is derived for transformation from transforms to originals in integral Laplace transformation. It is proved that a solution may be constructed with any predetermined degree of accuracy. Rules are formulated for selecting the zero and succeeding approximations. The method is illustrated by various examples of solving problems in the theory of elasticity. Authors' abstract.

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USSR

(1) UDC: None
MALINOVSKIY, B. N., SIVACHENKO, P. M., GULYAYEV, V. A., PALAGIN,
A. V., and YAKOVLEV, Yu. S.

"Digital Computing Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovar-
nyye znaki, No 9, 1973, p 164, No 368605

Abstract: To improve the reliability of the digital device de-
scribed in this patent, it is supplied with two logic circuit
units each consisting of two logic cells for summation, modulo two and two
logic OR cells. The switching cores of the cells direct the signal to record-
ing and memory addresses. Other circuits in the assembly are described in
some detail.

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USSR

UDC: 539.4:624.011

YAKOVLEV, Yu. S., LOBYSEV, V. L.

"Interaction Between a Seismic Wave and a Structure"

Tr. Vses. proyektno-izyskat. i NII "Gidroyekt" (Works of the All-Union Institute of Preliminary Study and Design, and of Scientific Research in the Planning of Hydraulic Structures), 1971, sb. 20, pp 87-93 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7Y870)

Translation: The paper deals with the two-dimensional problem of interaction between a body and a seismic wave. It is assumed that the seismic wave is given in the form of a vector field of displacements of the points of the free surface. The equation of motion in Laplace transforms is written out on the basis of known results. The transition to the originals is accomplished by the method of asymptotically equivalent functions. An approximate scheme is given to account for the elastic properties of a monolithic body in evaluating the reaction of the medium. Authors' abstract.

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1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SUBSTANTIAL RADIOACTIVATION DETERMINATION OF CADMIUM AND
COPPER IN YTTRIUM BY DISPLACEMENT EXTRACTION CHROMATOGRAPHY -U-
AUTHOR--(02)-YAKOVLEV, YU.V., STEPANETS, O.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 578-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHROMATOGRAPHY, COPPER, YTTRIUM, CADMIUM, CHEMICAL ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0472 STEP NO--UR/C075/70/025/003/0578/0579
CIRC ACCESSION NO--AP0126224

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--20NOV70

CTRC ACCESSION NO--AP0126224

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR THE
RADIOACTIVATION DETN. OF CU AND CD IN METALLIC Y BY USING DISPLACEMENT
EXTN. CHROMATOG. THE METHOD IS BASED ON THE SUCCESSIVE DISPLACEMENT OF
ELEMENTS WITH LOWER EXTN. CONSTS. FROM THEIR COMPLEXES WITH
DIETHYLDITHIOCARBAMATE BY SUBSTOICHIOMETRIC AMTS. OF ELEMENTS WITH
GREATER EXTN. CONSTS. THE SENSITIVITY OF THE DETN. FROM A 100 MG SAMPLE
IS 5 TIMES 10 PRIME NEGATIVES PERCENT FOR CU AND 6 TIMES 10 PRIME
NEGATIVES PERCENT FOR CD. FACILITY: INST. GEOCHEM. ANAL. CHEM.,
MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.

AP0044480

Abstracting Service: 4-70
CHEMICAL ABST.

Ref. Code
NE0000

85947y Neutron activation analysis of rare earth impurities in europium oxide. Alimarin, I. P.; Miklishanskii, A. Z.; Yakovlev, Yu. V. (Vernadskii Inst. Geochem. Anal. Chem., Moscow, USSR). *J. Radioanal. Chem.* 1970, 4(1), 75-80 (Eng).

A neutron activation method for detg. Yb, Dy, Ho, Sm, and La impurities in Eu oxide with sensitivities of 10^{-9} - $10^{-10}\%$ is described. The method is based on a preliminary concn. of the rare earth elements by reducing Eu(III) with Zn to Eu(II), and sepg. the trivalent rare earth elements by extrn. chromatog. After neutron irradiation, the individual radioisotopes of the rare earth elements are sepd. by using KU-2 cation exchange resin and ammonium α -hydroxyisobutyrate soln. as the eluant. RCDM

E.B.

REEL/FRAHE

19771103

Acc. Nr.

AP0044499

Abstracting Service: 4-70
CHEMICAL ABST.

Ref. Code

NE 0000

85948z Neutron activation analysis of rare earth impurities in metallic uranium. Alimarin, I. P.; Miklishanskii, A. Z.; Yakovlev, Yu. V. (V. I. Vernadskii Inst. Geochem. Anal. Chem., Moscow, USSR). *J. Radioanal. Chem.* 1970, 4(1), 45-51 (Eng.). A method with a sensitivity of 2×10^{-7} - $1 \times 10^{-9}\%$ has been developed for detg. Yb, Ho, Dy, Gd, Eu, Sm, and La impurities in metallic U by means of neutron activation. The method is based on preliminary chromatographic sepn. of the total amt. of rare earth elements from U by passing the soln. in H_2SO_4 through KU-2 cation exchange resin and eluting the traces of U retained by the resin with a soln. of ascorbic acid. The rare earth impurities are then eluted from the resin with 4-5N HCl, evapd., and irradiated for 20 hr with a neutron flux of 1.2×10^{13} neutrons/cm²-sec. Subsequently the traces of the rare earth elements are copptd. with $Fe(OH)_3$, dissolved in concd. HCl and sepd. from the Fe and other impurities by passing the soln. through Dowex 1X8 anion exchange resin in the chloride form. The individual rare earth elements are then sepd. from each other by using KU-2 cation exchange resin and a soln. of ammonium α -hydroxyisobutyrate as the eluant.

RCDM

EB

REEL/FRAE

19771122

18

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ROENTGENODIAGNOSIS OF CHANGES OF THE OSTEOARTICULAR APPARATUS IN
CHILDREN SUFFERING FROM NON SPECIFIC INFECTIOUS, RHEUMATOID, ARTHRITIS
AUTHOR--(03)-MIRIMOVA, T.D., YAKOVLEVA, A.A., BOGOSLOVSKAYA, V.A.

COUNTRY OF INFO--USSR

SOURCE--VOP OKHR MATERIN DET 15(1): 67-71. ILLUS. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RHEUMATIC DISEASE, X RAY STUDY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3009/0144

STEP NO--UK/0608/70/015/001/0067/0071

CIRC ACCESSION NO--AP0129009

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129009

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ROENTGENOLOGICAL EXAMINATION WAS MADE OF 1,168 JOINTS IN 225 CHILDREN SUFFERING FROM RHEUMATOID ARTHRITIS. A COMPARATIVELY BENIGN JOINT FORM OF RHEUMATOID ARTHRITIS WAS SEEN IN 134 PATIENTS, AND A SEVERE JOINT VISCERAL FORM IN 91. THE EXTENT OF ROENTGENOLOGICAL CHANGES DEPENDED ON THE FORM OF THE DISEASE. IN CHILDREN LOCALIZATION AND THE INCIDENCE OF AFFECTION OF THE JOINTS SOMEWHAT DIFFERED FROM THOSE IN ADULTS. BESIDES, A DIFFERENTIAL FEATURE OF RHEUMATOID ARTHRITIS IN CHILDHOOD IS THE CHARACTER AND THE EXTENT OF INJURY OF THE NUCLEI OF OSSIFICATION, DISTURBANCE OF THEIR GROWTH AND DEVELOPMENT, AND, CONSEQUENTLY, DERANGEMENT OF THE CHILD'S GROWTH. FACILITY: INST. PEDIAT., ACAD. MED. SCI. USSR, MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SPECTROGRAPHIC DETERMINATION OF IMPURITIES IN TITANIUM IV CHLORIDE
USING A HOLLOW CATHODE DISCHARGE -U-
AUTHOR--(03)--PEVTSOV, G.A., KRASILSHCHIK, V.Z., YAKOVLEVA, A.F.
COUNTRY OF INFO--USSR
SOURCE--Zh. ANAL. Khim. 1970, 25(3), 580-1
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SPECTROGRAPHIC ANALYSIS, TITANIUM CHLORIDE, CATHODE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0471 STEP NO--UR/C075/70/025/003/0580/0581
CIRC ACCESSION NO--AP0126223
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126223

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SPECTROGRAPHIC METHOD IS SUGGESTED FOR THE DETN. OF IMPURITIES IN TICI SUB4. THE IMPURITIES ARE CONCD. ON A C COLLECTOR BY DISTG. OFF TICI SUB4 AND THE CONC. IS ANALYZED, AFTER ADDING ASCL, IN A HOLLOW CATHODE IN WHICH THE EVAPN. ZONE IS SEPD. FROM THE EXCITATION ZONE. SI IS DETD. WITHOUT CONC. ANAL. LINES USED ARE CA 4226.7, MG 2802.7, MN 4030.7, NA 3302.3, PB 2833.1, FE 3719.9, NI 3414.8, CO 3453.5, CR 3605.3, Z 4044.1, AL 3944.0, CU 3274.0, SI 2516.1 ANGSTROM. THE SENSITIVITY OF THE DETNS. RANGES FROM 1 TIMES 10 PRIME NEGATIVE7 MINUS 1 TIMES 10 PRIME NEGATIVE5PERCENT WITH THE EXCEPTION OF SI, WHERE THE DETERMENABLE CONC. IS 1 TIMES 10 PRIME NEGATIVE3PERCENT. THE REPRODUCIBILITY IS 20-5PERCENT. FACILITY: ALL-UNION SCI.-RES. INST. CHEM. REAGENTS SPEC. PURE CHEM., MOSCOW, USSR.

UNCLASSIFIED

1/2 008
TITLE--PHENOL PURIFICATION -U- UNCLASSIFIED PROCESSING DATE--04DEC70
AUTHOR--(05)-MENYAYLO, A.T., GUROVICH, R.E., VOLKOVA, T.S., YAKOVLEVA,
A.K. POKROVSKAYA, I.YE.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 265,104
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHENOL, CHEMICAL PATENT, ION EXCHANGE RESIN, CHEMICAL
PURIFICATION/(U)KUZ ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1758 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0136998
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136998

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHENOL PURIFICATION IS CARRIED OUT
OVER ION EXCHANGE RESIN KU2, AT 90-100DEGREES, PH 6-7, AND VOL. RATE
1.5-2.5 HR PRIME NEGATIVE1.

UNCLASSIFIED

USSR

UDC 621.357.1.035.4:669.
872

YAKOVLEVA, A. V.

"Analysis of Electrolytes and Amalgams During the Preparation of Indium by
Methods of Amalgam Metallurgy"

Tr. In-ta organ. kataliza i elektrokhimii. AN Kaz SSR (Proceedings of the
Institute of Organic Catalysts and Electrochemistry. Academy of Sciences
Kazakhstan SSR) No 3, 1972, pp 59-61 (from Referativnyy Zhurnal -- Khimiya, No 7,
1973, Abstract No 7L329)

Translation: A chemical-spectroscopic method is proposed for the analysis of
electrolytes and amalgams recovered as a result of amalgam methods. Sensitivity
if 10^{-4} to $10^{-6}\%$.

1/1

- 4 -

1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EXCITATION OF XENON BY ACTIVE NITROGEN -U-
AUTHOR--(02)-CHIRKOV, V.N., YAKOVLEVA, A.V.
COUNTRY OF INFO--USSR
SOURCE--OPT. SPEKTROSK. 1970, 28(3), 441-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--XENON, NITROGEN, PULSE EXITATION, SPARK DISCHARGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0888 STEP NO--UR/0051/70/028/003/0441/0443
CIRC ACCESSION NO--AP0118057
UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0118057

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF EXCITATION OF XE BY COLLISION WITH N HAS BEEN STUDIED. PULSED DISCHARGE WAS USED FOR EXCITING N, XE, AND N SUB2 XE MIXTS. AT DIFFERENT PARTIAL PRESSURES. ACTIVE N IS CAPABLE OF EXCITING SOME XE LINES AND ENHANCES THEIR INTENSITY.

UNCLASSIFIED

USSR

Pesticides

UDC 632.954:633.63

LUT, F. A., (DECEASED), and YAKOVLEVA, A. V., Chernovtsy Experimental Station

"Testing of Herbicides in Sugar Beet Fields"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 5, May 70, pp 51-53

Abstract: It had been established in 1963-65 that dalapon, alipur, and murbetol were little suited for use as herbicides in sugar beet fields in the moist climate of Bukovina. In 1965-67 tests were conducted with TKhA, tillam, eptam, pyramine, and phenazon. Of these herbicides, pyramine and eptam, applied in the amounts of 6 and 4-6 kg/ha, respectively, had the best effect in reducing contamination with weeds. Pyramine stimulated the growth of sugar beet plants in the initial period of vegetation, while eptam in amounts in which it was effective as a herbicide had a harmful effect on sugar beets and lowered the yield of this crop. Phenazon, which was tested during one year only, was almost as effective as pyramine in reducing the amount of weeds. It had no harmful effect on sugar beet plants, but even stimulated their initial growth and development.

1/1

1/2 021
TITLE--EXTRACTION OF RHODIUM STANNOUS CHLORIDE COMPLEXES BY TRI N BUTYL
PHOSPHATE -U-
AUTHOR--(04)--KALININ, S.K., KATYKHIN, G.S., NIKITIN, M.K., YAKOVLEVA, G.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 535-8
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--RHODIUM COMPOUND, TIN CHLORIDE, COMPLEX COMPOUND, ORGANIC
PHOSPHATE, CHEMICAL SEPARATION, SOLVENT EXTRACTION, SPECTROGRAPHIC
ANALYSIS, PHOTOMETRIC ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0013
CIRC ACCESSION NO--AP0132313
STEP NO--UR/0075/70/025/003/0535/0538
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132313

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTIMUM CONDITIONS WERE FOUND FOR THE EXTIN. SEPN. OF TRACE AMTS. OF RH AS ITS COMPLEX WITH SNCL SUB2 FROM HCL MEDIA WITH BU SUB3 PG SUB4. RH CAN BE QUANT. EXTD. FROM 6.0M HCL OR FROM 2-6M HCLU SUB4 MEDIA BY USING GREATER THAN OR EQUAL TO 0.064M SNCL SUB2. EQUIL. IS ESTABLISHED AT VARIOUS INTERVALS FOR 0.5, 2.0, OR 6.0M HCL; IN THE LATTER CASE IT TAKES 30 SEC. RH CAN BE REEXTD. FROM THE ORG. PHASE WITH 0.25-0.5M HCL AFTER DILN. WITH C SUB6 H SUB6. RH CAN BE DETD. SPECTROGRAPHICALLY IN THE AQ. PHASE BY SUING THE RH 3434 ANGSTROM LINE OR BY A PHOTOMETRIC METHOD WITH SNCL SUB2. FACILITY: STATE SCI. RES. DES. INST. GIPRONIKEL, LENINGRAD, USSR.

UNCLASSIFIED

172 012
UNCLASSIFIED
TITLE--HIGHLY SENSITIVE SPECTROPHOTOMETRIC METHOD FOR DETERMINING RHODIUM
-U-
AUTHOR--(02)--KALININ, S.K., YAKOVLEVA, G.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 312-14
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, TIN CHLORIDE, RHODIUM, TRACE
ANALYSIS, METAL COMPLEX COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/1880
CIRC ACCESSION NO--AP0115699
STEP NO--UR/0075/70/025/002/0312/0314
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115699

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. OPTIMUM CONDITIONS FOR COMPLEX FORMATION IN THE SYSTEM RH(III)-HCL-H SUB2 O-HCLO SUB4-SNCL SUB2 ARE 0.05M HCL IN 6M HCLO SUB4, AND SN-RH RATIO LARGER THAN OR EQUAL TO 5000:1. THE COMPLEX HAS MAX. ABSORBANCE AT 330 NM AND DECOMPS. IN THE PRESENCE OF 2-6M HCL. BEER'S LAW IS OBEYED IN THE RANGE 0.01-0.5 MUG RH-ML IN THE PRESENCE OF 0.064M SNCL SUB2. THE MOLAR ABSORPTIVITY OF THE COMPLEX IS 5.4 TIMES 10 PRIME4. THE SENSITIVITY OF THE METHOD IS 10 TIMES HIGHER THAN OF THE METHOD WITH SNCL SUB2. THE DETERMINABLE MIN. IS 8 TIMES 10 PRIME NEGATIVE8 G RH. THE ERROR IN THE DETN. OF 0.05-0.15 MUG RH-ML IS PLUS OR MINUS 10PERCENT, IT INCREASES 2-3-FOLD AT SMALLER RH CONCNS.

UNCLASSIFIED

YAKOVLEVA, G. K.

1985 58975
21 Feb 73

- 29 -

We determined the medical care requirements of permanent residents of Moscow using the standardization method. The indices of "Methodological Approaches to Determination of Polyclinic and Hospital Care Demand of the Residents of Moscow," Sovetskoye zdravookhraneniye, No 9, 1971.

Our objective was to supply recommendations as to the demand referable to the population of Moscow and a specific type of care, on the basis of our previous studies to determine the requirements of urban population in polyclinic and hospital medical care, by means of standardizing the norms of supplying such care, by means of age and sex structure; we also wanted to determine the scope of polyclinic and hospital care received by nonresident patients in the public health institutions of Moscow.

Date pertaining to the methodological approaches to determining the medical care requirements of the inhabitants of Moscow and some preliminary data of this investigation have been published previously.

The requirements of the population of Moscow with regard to polyclinic and hospital care were determined by the All-Union Scientific Research Institute of Social Hygiene and Public Health Organization, Imperial N.A. Semashko in collaboration with the Main Administration for Public Health of the Moscow Municipal Executive Committee in 1969-1971. In accordance with a decision made by the board of the USSR Ministry of Health on 15 May 1967, using a method of investigation approved by the Institute's scientific council.

Article by I.D. Bogatyrev, Yu.A. Podvarka, V.D. Babkov, I.F. Zolotarev, V.I. Vetrov, A.I. Shchegolev, A.I. Shchegolev, Institute of Social Hygiene and Public Health, Organization, Imperial N.A. Semashko, Moscow; Sovetskoye zdravookhraneniye, Moscow, No 1, 1973, submitted 8 August 1972, pp 23-25.

UDC: 362.11+362.121.1
(470.311):61.012.2

5

50: JPR:5 54354
29 37. 71

METHODOLOGICAL APPROACHES TO DETERMINATION OF POLYMERIZATION AND HOSPITAL CARE DEMAND OF THE RESIDENTS OF MOSCOW

A.II. (M.I.; K.M.)

44- (Public Health)

Article by I. B. Gerasimov, L. A. Vorobeyev, Yu. A. Podvazka, N. D. Dubrovina, A. P. Zolotarev, A. A. Kozlov, All-Union Scientific Research Institute of Social Hygiene and Public Health Administration, Street N. A. Semashko, Moscow, Main Soviet Health Administration of the Executive Committee of the Moscow City Soviet of Workers' Deputies, Moscow, *Sovetskaya Zdravokhraneniya*, Kuznetsov, No. 9, 1971, published 6 March 1971, pp. 33-40]

Determination of the demand in Moscow with reference to polyclinic and hospital care is a burning issue.

The presence in Moscow of a branched out network of scientific research institutions, clinical hospitals, specialized departments and centers serviced by many highly qualified specialists is the reason why many out of town and rural residents come to the therapeutic and prophylactic institutions of Moscow for polyclinic and hospital medical care. In 1969 alone, 15,883 patients from other cities and rural regions visited the USSR Ministry of Health for a referral to Moscow specialists; 615 of them were hospitalized; 31,373 patients came to the reception rooms of the USSR Ministry of Health, and 1,642 of these differences between the number of patients from other cities and rural regions who came to the USSR and RSFSR ministries of health for a number of prior years. According to random statistical studies, up to 10 percent of the individuals admitted from rural regions and other cities to the hospitals of the Main Public Health Administration of the Moscow Region (Executive Committee of the Moscow City Soviet of Workers' Deputies), and a mean of about 30 percent of such individuals are hospitalized in the hospitals of scientific research institutions.

In view of this circumstance, at the request of the Main Public Health Administration of Mosproprom, the USSR Ministry of Health commissioned the All-Union Scientific Research Institute of Hygiene and Public Health of the USSR Academy of Sciences to investigate, jointly with the administration, the demand of the inhabitants of Moscow in medical care and to develop differentiated norms for specialized forms of such care with due consideration